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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SCHWARTZ, DARREN B

ART UNIT

PAPER NUMBER

2135

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/520,806	Applicant(s) AKKAR ET AL.	
	Examiner DARREN SCHWARTZ	Art Unit 2135	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 5 and 7 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n).

Claims 1-7 are objected to because of the following informalities: The claims recite a method "characterised" and should be corrected to read "characterized." Appropriate correction is required.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 6-7 are rejected under 35 U.S.C. 101 because the claims for the invention are directed to non-statutory subject matter, as they do not fall under any of the statutory classes of inventions. The language in the claims raise an issue because the claims are directed merely to an abstract idea that is not tied to an article of manufacture which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101.

The claims could reasonably be drawn to functional descriptive material, per se, i.e., "program" may be taken to mean software alone, and as such, the claims would be directed to non-statutory subject matter.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites "E," "F," "E'" and "F'." It is unclear as to what these letters/variables represent. The Examiner assumes these letters/variables representing finite sets.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4 and 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheng et al, "Defensive Programming, in the Rapid Development of a Parallel Scientific Program," hereinafter referred to as Cheng.

Re claim 1: Cheng teaches method to secure an electronic assembly implementing a calculation process characterized in that it consists in performing an additional calculation by a verification function on at least one intermediate result in order to obtain a calculation signature (page 665, right column, lines 26-41; page 666, left column, lines 55-58).

Re claim 2: Cheng teaches characterized in that it consists in performing at least once more all or part of the calculation in order to recalculate said signature and

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compare them in order to detect a possible error (page 665, right column, lines 26-41; page 666, left column, lines 28-33 & lines 55-58; page 666, right column, lines 7-10; page 667, left column, lines 1-4).

Re claim 3: Cheng teaches characterized in that it consists in: performing an elementary operation using another "super-function" operation acting from and/or to a larger set; performing said calculation by said verification function using the result obtained by said super-function in order to obtain said calculation signature (page 665, right column, lines 26-41; page 666, left column, lines 28-33 & lines 55-58; page 666, right column, lines 7-10; page 667, left column, lines 1-4; having multiple signature checking and assertion steps is well known in the art).

Re claim 4: Cheng teaches characterized in that the calculation of the elementary operation can be found using the calculation of the super-function (page 665, right column, lines 26-41; page 666, left column, lines 28-33 & lines 55-58; page 666, right column, lines 7-10; page 667, left column, lines 1-4).

Re claim 6: Cheng teaches electronic assembly comprising storage means of a calculation process, processing means of said process, characterized in that it includes storage means of a verification function used to perform an additional calculation on intermediate results in order to obtain a calculation signature (page 665, left column, lines 6-19; page 665, right column, lines 26-41; page 666, left column, lines 55-58).

Re claim 7: Cheng teaches a computer program including program code instructions to execute the steps of the method according to one of claims 1 to 5 when

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said program is run in a computer system (page 665, left column, lines 6-19; page 665, right column, lines 26-41; page 666, left column, lines 55-58).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al, "Defensive Programming, in the Rapid Development of a Parallel Scientific Program," hereinafter referred to as Cheng in view of Roelse (U.S. Pat Pub 2002/0101986 A1), hereinafter referred to as Roelse.

Re claim 5: Cheng teaches all the limitations of claim 3 as previously discussed.

However, Roelse teaches an elementary operation f of E in F is replaced by an operation f' of E' in F' where (Abstract; Fig 3):

E' and F' are super-sets of E and F , move from E to E' by one-to-one function h_1 (¶3; Fig 5, elt 516; ¶50; ¶52; an extension of a matrix or appendage of data to a datastream satisfies the conditions of a function being one-to-one); Move from F' to F by onto function h_2 (¶3; Fig 4: ¶13; ¶58); for any element x of E we have: $h_2(f'(h_1(x))) = f(x)$ (Fig 5: ¶14).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Cheng with the teachings of Roelse, for the purpose of providing methods of repairing errors in code execution.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al, "Defensive Programming, in the Rapid Development of a Parallel Scientific Program," hereinafter referred to as Cheng in view of Borst et al, "Cryptography on smart cards," hereinafter referred to as Borst.

Re claim 8: Cheng teaches storage means of a calculation process, processing means of said process, characterized in that it includes storage means of a verification function used to perform an additional calculation on intermediate results in order to obtain a calculation signature (page 665, left column, lines 6-19; page 665, right column, lines 26-41; page 666, left column, lines 55-58).

However, Borst teaches a smart card for performing the same (page 423-424; page 246: MAC).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Cheng with the teachings of Borst, for the purpose of providing small, portable, tamper-resistant devices for providing users with a convenient storage and processing capability (page 423).

Conclusion

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although

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the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the text of the passage taught by the prior art or disclosed by the examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DARREN SCHWARTZ whose telephone number is (571)270-3850. The examiner can normally be reached on 8am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on (571)272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. S./

Examiner, Art Unit 2135

/KimYen Vu/

Supervisory Patent Examiner, Art Unit 2135